

AMENDMENTS TO THE CLAIMS

1-29. (cancelled)

30. (currently amended) A fluid pressure disturbance damping arrangement for a fluid-driven actuation device including an actuator, a fluid pump, a fluid supply line for delivering fluid from the pump to the actuator at relatively high pressure, and a fluid return line for delivering fluid from the actuator to the pump at relatively low pressure, the damping arrangement comprising:

an elongate flexible damping hose in fluid communication with at least one of the supply and return lines, the hose having a longitudinal axis and about the axis a peripheral wall defining, in a cross-sectional plane perpendicular to the axis, a noncircular area of magnitude related to pressure exerted on the peripheral wall by a contained fluid, the peripheral wall being responsive to impulsive or vibrational pressure disturbances in the contained fluid to deform and restore locally changing the shape of the cross-section area defined thereby to dissipate energy associated with the pressure disturbance, wherein

the peripheral wall of the hose has a substantially fixed length in the cross-sectional plane perpendicular to the axis thereof under the impulsive or vibrational pressure disturbances, and

the hose has a wall construction including interwoven strands configured to be displaced relative to each other during deformation of the cross-sectional shape of the hose and to absorb deformation energy as frictional loss between the strands.

31. (currently amended) The damping arrangement according to claim 30, wherein the peripheral wall of the damping hose is arranged to define different cross-sectional areas at different longitudinal positions in response to the impulsive or vibrational pressure disturbances.

32. (previously presented) The damping arrangement according to claim 30, wherein the peripheral wall is configured to change shape in response to contained fluid pressure disturbances without storing disturbance energy solely as elastic stretching of the peripheral wall.

33. (cancelled)

34. (previously presented) The damping arrangement according to claim 30, wherein for a predetermined length of hose, the length of the peripheral wall is substantially fixed.

35. (previously presented) The damping arrangement according to claim 30, wherein the damping hose has two opposing first wall parts normally closer together than two orthogonally disposed opposing second wall parts.

36. (previously presented) The damping arrangement according to claim 35, wherein in the absence of fluid pressure the first wall parts are arranged to contact each other.

37. (previously presented) The damping arrangement according to claim 30, wherein in the absence of fluid pressure the peripheral wall has a shape defining a generally elliptical cross-section.

38. (currently amended) The damping arrangement according to claim 30, wherein the damping hose is provided situated in fluid communication with the return line of the fluid actuation device adjacent the actuator and between the actuator and the return line.

39. (currently amended) The damping arrangement according to claim 30 38, wherein the damping hose is located in and passes fluid of the return line of the actuation device adjacent the actuator.

40. (previously presented) The damping arrangement according to claim 30, wherein the damping hose is of fixed length.

41. (previously presented) The damping arrangement according to claim 30, wherein the fluid driven actuation device is a vehicle power-assisted steering rack and the damping hose is carried along its length by the steering rack.

42. (currently amended) A fluid driven actuation device including an actuator, a fluid pump,

a fluid supply line for delivering fluid from the pump to the actuator at relatively high pressure, a fluid return line for delivering fluid from the actuator to the pump at relatively low pressure, and a pressure disturbance damping arrangement in fluid communication with at least one of the supply and return lines, the damping arrangement comprising:

an elongated flexible damping hose having a longitudinal axis and about the axis a peripheral wall defining, in a cross-sectional plane perpendicular to the axis, a noncircular area of magnitude related to pressure exerted on the peripheral wall by a contained fluid, the peripheral wall being operable in response to impulsive or vibrational pressure disturbances in the contained fluid to deform and restore locally changing the shape of the cross-section area defined thereby to dissipate energy associated with the pressure disturbance, wherein

the peripheral wall of the hose has a substantially fixed length in the cross-sectional plane perpendicular to the axis thereof under the impulsive or vibrational pressure disturbances, and

the hose has a wall construction including interwoven strands configured to be displaced relative to each other during deformation of the cross-sectional shape of the hose and to absorb deformation energy as frictional loss between the strands.

43. (previously presented) The fluid driven actuation device according to claim 42, wherein the damping hose is located in the return line adjacent the actuator, providing a passage for return of the contained fluid form the actuator to the fluid pump.

44. (previously presented) The fluid driven actuation device according to claim 42, wherein the damping hose of the pressure disturbance damping arrangement is of fixed length.

45. (previously presented) The fluid driven actuation device according to claim 42, wherein the damping hose is supported along its length by the actuator.

46. (previously presented) The fluid driven actuation device according to claim 42, wherein the peripheral wall is configured to change shape in response to contained fluid pressure disturbances without storing disturbance energy solely as elastic stretching of the peripheral wall.

47. (cancelled)

48. (previously presented) The fluid driven actuation device according to claim 42, wherein for a predetermined length of hose, the peripheral length of the hose wall is substantially fixed.

49. (previously presented) The fluid driven actuation device according to claim 42, wherein the hose has two opposing first wall parts normally closer together than two orthogonally disposed opposing second wall parts.

50. (previously presented) The fluid driven actuation device according to claim 42, wherein in the absence of fluid pressure the peripheral wall has a shape defining a generally elliptical cross-section.

51. (previously presented) The fluid driven actuation device according to claim 50, wherein in the absence of fluid pressure the first wall parts are arranged to contact each other.

52. (previously presented) The fluid driven actuation device according to claim 42, wherein the actuator includes a power assisted steering mechanism for a road vehicle.

53. (previously presented) The fluid driven actuation device according to claim 42, wherein the actuator comprises a steering rack or box having a casing mounted on the vehicle.

54. (previously presented) The fluid driven actuation device according to claim 53, wherein the damping hose has its peripheral wall in contact with the casing of the steering rack or box for substantially the entire length of the damping hose.

55. (previously presented) The fluid driven actuation device according to claim 42, wherein the contained fluid is a hydraulic fluid and the damping hose is in the return line.

56. (currently amended) A method of damping disturbances in fluid pressure within a fluid-driven actuation device including an actuator, a fluid pump, a fluid supply line for delivering

fluid from the pump to the actuator at relatively high pressure, and a fluid return line for delivering fluid from the actuator to the pump at relatively low pressure, the method comprising:

coupling to at least one of the supply and return lines an elongated flexible damping hose having a longitudinal axis and about the axis a peripheral wall defining, in a cross-sectional plane perpendicular to the axis, a noncircular area of magnitude related to pressure exerted on the peripheral wall by a contained fluid, and causing said peripheral wall to deform and restore locally in response to impulsive or vibrational pressure disturbances in the contained fluid changing the shape of the cross-section area defined thereby and dissipating energy associated with the pressure disturbance,

providing the peripheral wall of the hose with a substantially fixed length in the cross-sectional plane perpendicular to the axis thereof and not able to effect significant stretching under the impulsive or vibrational pressure disturbances, and

providing the hose with a wall construction including interwoven strands configured to be displaced relative to each other during deformation of the cross-sectional shape of the hose and to absorb deformation energy as frictional loss between the strands.

57. (previously presented) The method according to claim 56 further comprising inserting the damping hose in the actuation device return line adjacent the actuator.

58. (previously presented) The method according to claim 56 further comprising supporting the damping hose with its peripheral wall in contact with a casing of the actuator for substantially the whole length of the damping hose.